CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.   (Currently Amended) A method comprising:

labeling each received network packet with information identifying an associated flow and a queue in which the packet will await transmission;

mapping each packet into one of a plurality of queues to await transmission based on the packet's label identifiers;

scheduling the packets in the queues for transmission;

encapsulating the packets to form frames of uniform size; and

transmitting the uniform frames through a switch fabric to a next destination,

wherein the labeling is performed by a first subsystem and the mapping, scheduling, and encapsulating are performed by a second subsystem, the first and second subsystems interconnected via a switch coupled to a switch fabric, wherein the first and second subsystems are disposed either on a baseboard or on the baseboard and one or more mezzanine cards coupled to the baseboard.

2.   (Original) The method of claim 1, further comprising decapsulating a received frame of encapsulated packets.

3.   (Original) The method of claim 1, wherein labeling each packet to identify an associated flow and a queue in which the packet will await transmission comprises determining a flow associated with the packet based on the packet's source address and destination address.

4.   (Original) The method of claim 3, wherein labeling each packet to identify an associated flow and a queue in which the packet will await transmission comprises determining a flow associated with the packet based on protocols associated with the packet.

5.   (Original) The method of claim 1, wherein labeling each packet to identify an associated flow and a queue in which the packet will await transmission comprises determining a traffic class to which the packet belongs.

6.   (Original) The method of claim 1, wherein encapsulating the packets to form frames of uniform size comprises encapsulating the packets to form frames of uniform size and adding headers that contain information for decoding each frame back into packets.

7.   (Original) The method of claim 1, wherein encapsulating packets to form frames of uniform size comprises encapsulating packets to form frames of uniform size by merging multiple packets into one frame using multiplexing.

8.   (Original) The method of claim 1, wherein encapsulating packets to form frames of uniform size comprises encapsulating packets to form frames of uniform size by segmenting a packet and placing the packet segments into multiple frames using segmentation and reassembly.

9.   (Currently Amended) An apparatus comprising:

a classification element to label packets received from a network with information identifying an associated flow and queue;

a mapping element coupled to the classification element to place the packets into one of a plurality of queues based on the packet's label identifiers;

a scheduler coupled to the mapping element to schedule the packets in the queues for transmission; and

an encapsulation element coupled to the scheduler to encapsulate the scheduled packets into uniform size frames before the packets are transmitted through a switch fabric to a next destination,

wherein the classification element is coupled to the mapping element, the scheduler, and the encapsulation element via a switch for coupling to a switch fabric[[.]], wherein the classification element, the mapping element, the scheduler, and the encapsulation element are disposed within a single network node.

10.   (Previously Presented) The apparatus of claim 9, further comprising an access unit coupled to the classification element through the switch to provide access to communications from the network.

11.   (Original) The apparatus of claim 9, further comprising an adjunct unit to perform signal processing functions.

12.   (Previously Presented) The apparatus of claim 9, wherein the switch is coupled to the encapsulation element to transmit the scheduled packets to the next destination through the switch fabric.

13. – 20. (Cancelled)

21.   (Currently Amended) A system comprising:

an access unit to provide access to communications from a network;

a switch coupled to the access unit to receive and transmit packets;

a classification element coupled to the switch to label packets received from the network with information identifying an associated flow and queue;

a mapping element coupled to the classification element via the switch to place the packets into one of a plurality of queues based on the label identifiers;

a scheduler coupled to the mapping element to schedule the packets in the queues for transmission to a next destination;

an encapsulation element coupled to the scheduler to encapsulate the scheduled packets into uniform size frames; and

a switch fabric coupled to the switch [[via]]through which scheduled encapsulated packets are transmitted to the next destination, wherein the classification element, the mapping element, the scheduler, and the encapsulation element are disposed within a single network node.

22.   (Original) The system of claim 21, further comprising an adjunct unit coupled to the switch to perform digital signal processing (DSP) functions.

23.   (Original) The system of claim 21, wherein the switch is a PCI-Express/Advanced Switching switch.

24.   (Original) The system of claim 21, wherein the switch fabric is a PCI-Express/Advanced Switching fabric.

25.   (Original) The system of claim 21, wherein the switch fabric is an Ethernet fabric.

26.   (Original) The system of claim 21, wherein the switch fabric is an InfiniBand fabric.